**After Downturn, A Brighter Future for Automotive Engineers**

[**Charles J. Murray, Senior Technical Editor**](http://www.designnews.com/document.asp?doc_id=228490&)

For automotive engineers, a better future is coming, experts say.

But as the technical community struggles back to its feet after the economic collapse of the past year, it's going to need to be willing to adapt. In the next few years, automotive engineers will have to work in global collaborative environments. They'll need to favor virtual tools over physical prototypes. And they'll have to learn about embedded systems, control software and electronics.

The good news is that engineers who do all that will likely find themselves employed.

"The big picture for the next few years looks pretty good," notes David Cole, chairman of the[Center for Automotive Research](http://www.designnews.com/common/jumplink.php?target=http%3A%2F%2Fwww.cargroup.org%2F) (CAR). "Everybody has been cutting to the bone and *into* the bone. What we will undoubtedly do as we come out of this is we will realize that we've overcut. We always do this. Then we go out on a hiring spree."  
**Help for the shell-shocked**        
Until that hiring spree arrives, however, many engineers will change industries. They'll move from state to state. They'll leave the automotive industry.

"People who have been laid off are depressed and shell-shocked and haven't gotten over the sense of being victims," says Rob Kleinbaum, managing director for RAK & Co., a general management and operational consulting company with more than two decades of automotive experience. "Some people are even going to say, â€˜To heck with engineering.'"

As bad as the economy looks right now, though, experts foresee a number of reasons why an engineering comeback is imminent. The biggest, they say, is the baby boom. As boomers retire, positions will open up. A CAR study called "Beyond The Big Leave" contends that in the next four to five years, the American economy will be short about ten million skilled workers, many of whom will be engineers. Over 12-15 years, that figure will balloon to about 30 million. At the same time, more than 13 million vehicles are being scrapped each year, while U.S. capacity is being reduced annually by four million units. Those figures, experts say, add up to a need for vehicles, as well as the engineers who design them.

In the long term, births and national fertility rates also appear to bode well for American engineers. The U.S. has far higher birth rates than Germany or Japan, the two other countries that produce the majority of the world's cars. In 2008, for example, the U.S. birth rate was 14.0 per 1,000 people, while Japan had 8.3 and Germany had 8.2.  Over the next 20-30 years, Japan's population is actually expected to decline by about 60 million. For engineers, the bottom line is simple: Foreign automakers will put manufacturing facilities in the U.S., as close as possible to educated workforces. Cole says that the change is already beginning.

Still, recovering automakers will have new criteria when they return. "With a turn in the market, the outlook will be good," Cole says. "But in terms of skills, everything will be different. The global competitive environment is shifting."

Experts say that engineers who understand embedded software, math modeling, and electronic controls will be in demand. Moreover, the new breed of engineers will have to be ready to work with foreign automakers and suppliers. They'll have to deal with counterparts abroad, which will nearly eliminate time-honored methods of physical prototyping, thus thrusting them more deeply into virtual design.

"It's not as if an engineer in this country will only design U.S. products," Cole says. "They'll be engineering products from all over the world. They'll need to work in global collaborative environments, be strong in their engineering fundamentals, and be proficient in all manner of modeling and simulation."

Ironically, the most valuable degree might be one in mechanical engineering. Mechanical engineering degrees, however, will need to be augmented with experience or education in software or embedded controls.

"A few years ago, electrical engineering was the hottest degree," Cole says. "But electronics ultimately need to be integrated into a product, so you need an engineer with a systems point of view."

For individuals who remain in automotive engineering, the good news is that corporate cultures in American companies are likely to change. Consultants say that for those companies to emerge stronger, their cultures will need to emphasize engineering more than ever before.

"Japanese car companies have real engineering cultures," Kleinbaum says. "Their engineers feel they have a route to the top. But in domestic companies, engineers know that the route to the top is through finance, marketing and general management."

Kleinbaum argues that for American automakers to stay in business, they'll need to provide a track for ambitious, committed engineers. "They need to be engineering-focused and product-focused," he says. "In a healthy automotive culture, you would have far more engineers sitting on the management committee than finance people."

To be sure, the outlook is likely to be cloudier for older engineers. Engineers whose expertise lies in purely mechanical systems and physical prototyping are more likely to struggle. Whether such engineers can find work in the revamped auto industry will depend on their willingness to educate themselves and work in global environments.

"There's not going to be a neatly packaged answer that applies to all engineers," Cole says. "But there's opportunity out there for people with skills, as long as those skills are contemporary."

**What Is The Scope Of Automobile Engineering?**

Where can a automobile Engineer be placed?

Automobile engineering incorporates numerous disciplines which allow for greater scope in the possibilities of general or specialist careers open to qualified candidates. The world of automobile manufacture is a thriving market place with an ever increasing number of motor vehicles, as there are more car, buses, trucks, recreational vehicles on the road than ever before. This in turn creates a strong demand for good people to be able to design, manufacture and maintain the vehicles and their subsystems.  
  
Safety engineering, electrical engineering, mechanical engineering and of course, in more modern times, software engineering are all vital aspects of the industry that to some degree or other come under the umbrella of Automobile Engineering. You only need to take a look at the myriad of car advertisements on the television, and their various selling points to realise what goes into the design and manufacture of an automobile.   
  
A course in Automobile Engineering should take you step by step through the design and manufacturing process of vehicles, from conception through to the point of final assembly. In the undertaking a course in Automobile Engineering it is a necessity to have a good back ground in maths and science, preferably in the arena of physics as this understanding will be vital when encountering technology incorporating mechanics, electrical motion and thermodynamics among other concepts.  
  
Students that graduate and excel in this vocationally focused environment have the option of applying for jobs in the automobile industry or can set up on their own, as former consultant to Toyota, Jonathan Ward is a testament to. Ward founded his own business, TLC in 1996;  a company now manufacturing their own bespoke four wheel drive trucks with some selling at over $100,000 per vehicle.

# CAREER IN AUTOMOBILE

**CAREER IN AUTOMOBILE INDUSTRY**

No one in India would have ever dreamt of seeing millions of automobiles in the tier 2 cities, let alone the metropolitan ones in the 1980s! **Automobile industry in India** has seen fast development in the last number of years and then in the past few years has additionally attracted focus from around the globe with many modern Automobile products. Consists of the production of automobiles in two wheelers like bikes, scooters, cycles and production of automobiles in fours wheelers like cars, vans, trucks, tractors and buses. The rising and consistently growing economy of the country enable most of the population as well as ensure them to get a higher standard of living. Apart from own house, every one demands their own vehicle to move on and show the world their worth. This resulted in accumulating of millions of vehicles on the Indian roads consequently. And this has also made the automobile industry one of the most cash rich as well as promising industry to make a stable career in.

Opening of various call centers gave a chance to thousands of people to by their cars and get them converted as a taxi! Automobile is one of the leading industries in india as of date and has been growing irrespective of the ups and downs in the economy. Various **Automobile Companies in India** set-up their corporate offices and manufacturing unit. There are lots of job vacancies in these multinational companies for experienced people and these people can choose a **career in the automobile industry**, which results in a bright future in automobile. As an **automobile engineer in india**anyone can works in manufacturing unit, not only with the major companies but also with smaller automobile companies who supplying various automobile components like suspension systems or steering systems to car makers.

A **career in automobile industry** also means that one gets to apply their engineering skills, marketing skills, and administrative skills to grow a company and industry rapidly to ensure thousands of more jobs for the next generation. The automobile industry is responsible to create and manufacture the two-wheelers such as scooters, motorcycles, bicycles, four wheelers like cars, tractors, buses, trucks, among others. It also is divided in to various divisions like the light carrier vehicles as well as the heavy commercial vehicles and this requires a lot of skilled as well as trained labor to apply their knowledge in to practice at the company to make a bright future.

## Jobs and Career in Automobiles companies in India

The impressive factor about the **career in automobile engineering** is that there's truly nobody thing known as an automobile engineer. Major **Automobiles companies in India**are Maruti, Ford, Toyota, Fiat, Skoda, Honda, Hyundai, Mahindra & Mahindra and Tata Motors are making the dreams of millions of middle class people to have their own car, a reality. Students with a relevant **[mechanical engineering](http://www.indiaacademic.com/branches-of-engineering/mechanical-engineering.html)**, electrical or **[automobile engineering](http://www.indiaacademic.com/branches-of-engineering/automobile-engineering.html)** degree are eligible to apply for the higher position jobs in these automobile companies in India.

**Automobile Engineering**

You have a fetish for fast cars coupled with technical brilliance. If you still bother on the profession you should opt for, you are wasting precious time.  
  
Your skill and passion has only one profession that's waiting for you – the one that will guarantee you life long professional satisfaction – Automobile Engineering.

It will help you gain and sharpen the technical talent you possess, making you more creative and efficient by equipping you with knowledge on every aspect of the design and construction of vehicles and its related components.

**What would you do in this profession?**  
An automobile engineer works on different vehicle systems and set ups viz.,

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| http://genwis.com/bullets/bluedoublepoint.png | design |
| http://genwis.com/bullets/bluedoublepoint.png | testing and development |
| http://genwis.com/bullets/bluedoublepoint.png | service and maintenance |
| http://genwis.com/bullets/bluedoublepoint.png | safety |
| http://genwis.com/bullets/bluedoublepoint.png | fuel efficiency |

You would be involved in either - research work, manufacturing or overlooking the operations part of day to day design and development.  
  
**Career prospects**  
With global automobile giants setting up their base in the country and Indian automobile companies coming up to world standards, the opportunities and future of an automobile engineering student is positive and bold.  
  
The automobile industry is getting more and more technology driven, hence the importance and demand for qualified technical students to take up the challenging positions are on a high.  
  
The remunerations for an automobile engineer though are on the higher side, it depends on your institutional background and valuable experience you gain.  
  
An automobile engineer can find job in:-

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| http://genwis.com/bullets/bluedoublepoint.png | automobile manufacturing companies, and |
| http://genwis.com/bullets/bluedoublepoint.png | automobile parts and equipment manufacturing / assembling plants |

**What skills should you posses?**  
Passion, coupled with good logical skill and ability to adapt to complex and changing concepts will hold you good in this field of engineering.  
  
Good understanding and drawing skills would be a plus point to gain an upper hand in knowing the complex structures and sketches involved in the design aspect of a vehicle system.  
  
All the basic skills required for a successful engineer is discussed in the main article ([see here](http://genwis.com/engineering/engineering.htm#Skills)).  
  
**Topics covered in your curriculum?**  
Important topics in your curriculum are listed below -

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| http://genwis.com/bullets/bluedoublepoint.png | Maths |
| http://genwis.com/bullets/bluedoublepoint.png | Computer science |
| http://genwis.com/bullets/bluedoublepoint.png | Fluid mechanics |
| http://genwis.com/bullets/bluedoublepoint.png | Electrical and electronics engineering |
| http://genwis.com/bullets/bluedoublepoint.png | Technical drawing |
| http://genwis.com/bullets/bluedoublepoint.png | Automobile parts and components |

**Eligibility, Entrance Exams and Institutes**  
The minimum requirement to become an automobile engineer is a bachelor’s degree or a diploma in automobile engineering.

Optionally, students can take up any of the following engineering field and choose automobile as their degree /diploma specialisation.

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| http://genwis.com/bullets/bluedoublepoint.png | [Mechanical engineering](http://genwis.com/engineering/mechanical_engineering.htm) *(highly recommended)* |
| http://genwis.com/bullets/bluedoublepoint.png | [Electronics engineering](http://genwis.com/engineering/electronics_engineering.htm) |
| http://genwis.com/bullets/bluedoublepoint.png | [Electrical engineering](http://genwis.com/engineering/electrical_engineering.htm) |

Eligibility for a diploma is a pass in standard X and standard XII (with science & maths) for a degree respectively.

The entrance exams for various institutes are listed here ([click](http://genwis.com/entrance/engineering/engineering.htm))

If you are confused whether to take a degree programme or opt for a diploma, you may [check here](http://genwis.com/compare/degree_vs_diploma.htm) to know the basic difference between both.

**Advise**  
Good results in maths and physics in the science stream would help you greatly in your pursuit of an automobile engineering degree, as these two subjects forms the core of this engineering stream.  
  
The other key steps an engineering student should take, during their course, to improve on skills and experience, are discussed in the engineering main article ([see here](http://genwis.com/engineering/engineering.htm#Advise)).

**Further studies (Masters and Ph.D programmes)**

Students can choose the following course for higher studies.

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| http://genwis.com/bullets/bluedoublepoint.png | [**M. Tech / M. E**](http://genwis.com/engineering/engineering.htm#Higher) |
| http://genwis.com/bullets/bluedoublepoint.png | [**PhD (Doctorate)**](http://genwis.com/engineering/engineering.htm#Higher) |
| http://genwis.com/bullets/bluedoublepoint.png | [**MBA (Regular)**](http://genwis.com/engineering/engineering.htm#Higher) |

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| http://genwis.com/bullets/bluedoublepoint.png | [**Post  Diploma**](http://genwis.com/engineering/engineering.htm#Higher) |